

IN THE
Supreme Court of the United States

OCTOBER TERM, 1990

STATE OF ARKANSAS, *et al.*,
v. *Petitioners,*

STATE OF OKLAHOMA, *et al.*,

Respondents.

ENVIRONMENTAL PROTECTION AGENCY,
v. *Petitioner,*

STATE OF OKLAHOMA, *et al.*,

Respondents.

On Writs of Certiorari to the
United States Court of Appeals
for the Tenth Circuit

JOINT APPENDIX

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Dated: May 31, 1991

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IN THE UNITED STATES COURT OF APPEALS
FOR THE TENTH CIRCUIT

No. 89-9503

STATE OF OKLAHOMA;
OKLAHOMA SCENIC RIVERS COMMISSION;
POLLUTION CONTROL COORDINATING BOARD,
Petitioners,
v.

ENVIRONMENTAL PROTECTION AGENCY,
Respondent,

OKLAHOMA WILDLIFE FEDERATION; STATE OF ARKANSAS;
ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND
ECOLOGY; CITY OF FAYETTEVILLE, Arkansas; THE
BEAVER WATER DISTRICT,
Intervenors.

No. 89-9507

SAVE THE ILLINOIS RIVER (STIR), a non-profit
corporation of the State of Oklahoma,
Petitioner,
v.

ENVIRONMENTAL PROTECTION AGENCY,
Respondent,

BEAVER WATER DISTRICT; STATE OF ARKANSAS; AR-
KANSAS DEPARTMENT OF POLLUTION CONTROL AND
ECOLOGY; CITY OF FAYETTEVILLE, Arkansas; STATE OF
OKLAHOMA; OKLAHOMA SCENIC RIVERS COMMISSION;
POLLUTION CONTROL COORDINATING BOARD,
Intervenors.

No. 89-9516

STATE OF ARKANSAS; ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY; THE BEAVER WATER DISTRICT; CITY OF FAYETTEVILLE,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY,
Respondent,

SAVE THE ILLINOIS RIVER (STIR); STATE OF OKLAHOMA; OKLAHOMA SCENIC RIVERS COMMISSION; POLLUTION CONTROL COORDINATING BOARD,

Intervenors.

RELEVANT DOCKET ENTRIES

| DATE | FILINGS—PROCEEDINGS |
|---------|---|
| 1/12/89 | Petition for review filed for State of Oklahoma. |
| 1/24/89 | Notice of intervention as party filed by Oklahoma Wildlife Federation in No. 89-9503. |
| 1/30/89 | Petition for review filed for Save the Illinois. |
| 2/8/89 | Notice of intervention as party filed by City of Fayetteville in No. 89-9503. |
| 2/8/89 | Notice of intervention as party filed by the Beaver Water District in No. 89-9503. |
| 2/8/89 | Notice of intervention as party filed by State of Arkansas in 89-9503, Arkansas Department of Pollution Control & Ecology in No. 89-9503. |
| 2/9/89 | Letter from Clear Creek and Illinois River Property Owners Association of Arkansas expressing their opinions in the appeal. |

| DATE | FILINGS—PROCEEDINGS |
|---------|---|
| 2/14/89 | Notice of intervention as party filed by the Beaver Water District in No. 89-9507. |
| 2/14/89 | Notice of intervention as party filed by State of Arkansas and Arkansas Department of Pollution Controls & Ecology in No. 89-9507. |
| 2/16/89 | Notice of intervention as party filed by City of Fayetteville in No. 89-9507. |
| 3/3/89 | Respondent's motion to consolidate appeals filed by EPA in Nos. 89-9503 and 89-9507. |
| 3/10/89 | Case docketed. Transfer from Eight Circuit of Petition for Review filed by City of Fayetteville, The Beaver Water District, Arkansas Department, and State of Arkansas. |
| 3/10/89 | Notice of intervention as party filed by Save the Illinois in 89-9516. |
| 3/24/89 | Motion filed by Petitioner State of Oklahoma in No. 89-9503 to consolidate appeals, and to extend time to file petitioner's brief until 40 days from which the motion to consolidate is granted. |
| 3/28/89 | Response filed by Save the Illinois in Nos. 89-9507 and 89-9516 to motions to consolidate appeals in Nos. 89-9503, 89-9507, 89-9516. |
| 3/29/89 | Notice of intervention as party filed by State of Oklahoma in Nos. 89-9507 and 89-9516. |
| 3/31/89 | Intervenor's brief filed by Oklahoma Wildlife in No. 89-9503. The Oklahoma Wildlife Federation adopts in full and incorporates by reference the Brief in Chief of State of Oklahoma, Oklahoma Dept. of Pollution Control & Oklahoma Scenic Rivers Commission. |

| DATE | FILINGS—PROCEEDINGS |
|---------|--|
| 4/4/89 | Response filed by City of Fayetteville in No. 89-9516, The Beaver Water District in No. 89-9516, Arkansas Department in No. 89-9516, State of Arkansas in No. 89-9516 to motions to consolidate appeals in Nos. 89-9507, 89-9503, 89-9516. |
| 4/6/89 | Respondent's motion to dismiss case along with memorandum in support filed by EPA. |
| 4/6/89 | Respondent's motion to consolidate appeals and briefing schedules and to stay briefing pending resolution of jurisdictional issues. |
| 4/10/89 | Order filed by RLH granting Respondent's motion to consolidate appeals, granting Petitioners' motion to consolidate appeals, and granting Petitioners' motions to extend time to file opening briefs. |
| 4/17/89 | Order filed by RLH deferring Respondent's motion to dismiss case to the panel assigned to hear the case on the merits. |
| 4/21/89 | Response filed by State of Oklahoma in No. 89-9516 to Appellee/Respondent motion to dismiss case and Appellee/Respondent motion to consolidate appeals. |
| 4/24/89 | Response filed by Save the Illinois in No. 89-9516 to Respondent motion to dismiss case. |
| 5/2/89 | Response filed by Arkansas Department in No. 89-9503, State of Arkansas in No. 89-9503, The Beaver Water District in No. 89-9503, City of Fayetteville in No. 89-9503, City of Fayetteville in No. 89-9507, Arkansas Department in No. 89-9507, State of Arkansas in No. 89-9507, The Beaver Water District in No. 89-9507, City of Fayetteville in No. 89-9516, The Beaver Water District in No. 89-9516, Arkansas Department in No. 89-9516, State of Arkansas in No. 89-9516. |

| DATE | FILINGS—PROCEEDINGS |
|---------|--|
| 5/3/89 | Response filed by Arkansas Department in 89-9503, State of Arkansas in 89-9503, The Beaver Water in 89-9503, City of Fayetteville in 89-9503, City of Fayetteville in 89-9507, Arkansas Department in 89-9507, State of Arkansas in 89-9507, The Beaver Water District in 89-9507, EPA in 89-9516, The Beaver Water District in 89-9516, Arkansas Department in 89-9516, State of Arkansas in 89-9516 to Respondent motion to dismiss case in 89-9516. |
| 5/22/89 | Petitioner's brief filed by State of Oklahoma in 89-9503, Save the Illinois in 89-9507. |
| 5/22/89 | Addendum to brief filed by Petitioner State of Oklahoma in 89-9503, Intervenor State of Oklahoma in 89-9507, Petitioner Save the Illinois in 89-9507, Intervenor State of Oklahoma in 89-9516, Intervenor Save the Illinois in 89-9516. |
| 6/28/89 | Brief filed by Petitioner City of Fayetteville in 89-9516, Petitioner The Beaver Water District in 89-9516, Petitioner Arkansas Department in 89-9516, Petitioner State of Arkansas in 89-9516. |
| 6/28/89 | Addendum to brief filed by Petitioner City of Fayetteville in 89-9516, Petitioner The Beaver Water District in 89-9516, Petitioner Arkansas Department in 89-9516, Petitioner State of Arkansas in 89-9516. |
| 8/11/89 | Respondent's brief filed by EPA in Nos. 89-9503, 89-9507, and 89-9516. |
| 8/11/89 | Addendum to brief filed by Respondent EPA in Nos. 89-9503, 89-9507, and 89-9516. |
| 8/25/89 | Agency record filed. Volumes I-XI (ORIGINALS). |
| 9/11/89 | Petitioner's reply brief filed by State of Oklahoma in 89-9503, Save the Illinois in 89-9507, City of Fayetteville in 89-9516, The Beaver Water District in 89-9516, Arkansas Department in 89-9516, State of Arkansas in 89-9516. |

| DATE | FILINGS—PROCEEDINGS |
|---------|---|
| 9/11/89 | Addendum to brief filed by Petitioner State of Oklahoma in 89-9503, Petitioner Save the Illinois in 89-9507, Petitioner City of Fayetteville in 89-9516, Petitioner The Beaver Water District in 89-9516, Petitioner Arkansas Department in 89-9516, Petitioner State of Arkansas in 89-9516. |
| 9/27/89 | Petitioner's reply brief filed by State of Oklahoma in 89-9503, Save the Illinois in 89-9507, City of Fayetteville in 89-9516, The Beaver Water District in 89-9516, Arkansas Department in 89-9516, State of Arkansas in 89-9516. |
| 1/5/90 | Hearing set for March 1990 Session, at Denver. |
| 2/8/90 | Petitioner's settlement conference report filed. |
| 2/23/90 | Motion to enlarge the time for oral argument filed by State of Arkansas in 89-9503, EPA in 89-9503, State of Oklahoma in 89-9503, State of Oklahoma in 89-9507, State of Arkansas in 89-9507, EPA in 89-9507, State of Oklahoma in 89-9516, EPA in 89-9516, State of Arkansas in 89-9516. |
| 2/27/90 | Order filed by Judge(s) Anderson, Brorby, Theis granting motion to enlarge time for argument. |
| 3/5/90 | Case argued and submitted to Judges Anderson, Brorby, Theis. |
| 7/11/90 | Terminated on the Merits after Oral Hearing; Petition has been review and we REVERSE EPA's decision authorizing Fayetteville's municipal treatment plant to discharge a portion of its effluent to the Illinois River basin. Written, Signed, Published. Anderson, panel member; Brorby, authoring judge and Theis, panel member. |
| 8/20/90 | Respondent's motion to extend time to file petition for rehearing until 9/10/90 filed by EPA in Nos. 89-9503, 89-9507, and 89-9516. |

| DATE | FILINGS—PROCEEDINGS |
|----------|--|
| 8/21/90 | Order filed by RLH granting Respondent motion to extend time to file petition for rehearing. - |
| 8/22/90 | Motion to extend time to file petition for rehearing until 9/10/90. Filed by Arkansas Department, State of Arkansas, The Beaver Water District, City of Fayetteville in Nos. 89-9503,, 89-9507, 89-9516. |
| 9/6/90 | Order filed by Judges Anderson, Brorby and Theis granting motion to extend time to file petition for rehearing. Petition for rehearing may be filed on or before 9/10/90. |
| 9/10/90 | Motion for leave to leave to file brief of amicus curiae filed by Arkansas Poultry in 89-9503, 89-9507, 89-9516. |
| 9/10/90 | Joint motion for leave to file amici brief filed by Associated Indust. and Arkansas Federation in 89-9503, 89-9507 and 89-9516. |
| 9/10/90 | Motion for leave to file amicus curiae brief filed by Arkansas Municipal in 89-9503, 89-9507 and 89-9516. |
| 9/10/90 | Petition for rehearing en banc filed by EPA in 89-9503, 89-9507 and 89-9516. |
| 9/10/90 | Petitions for rehearing en banc filed by Arkansas Department in 89-9503, 89-9507, and 89-9516. |
| 9/10/90 | Petition for rehearing en banc filed by City of Fayetteville in 89-9503, 89-9507, and 89-9516. |
| 9/10/90 | Petition for rehearing en banc filed by State of Arkansas in 89-9503, 89-9507, and 89-9516. |
| 9/10/90 | Petition for rehearing en banc filed by The Beaver Water District in 89-9503, 89-9507, 89-9516. |
| 10/11/90 | Amendment to opinion filed by Judge(s) Anderson, Brorby, Theis. |

| DATE | FILINGS—PROCEEDINGS |
|----------|---|
| 10/11/90 | Order filed by Judge(s) Anderson, Brorby, Theis granting motions of Arkansas Poultry Federation, Associated Industries of Arkansas, and Arkansas Federation of Air & Water Users leave to become amicus in 89-9503, 89-9507, 89-9516. |
| 10/11/90 | Order filed by Judge(s) Holloway, McKay, Logan, Seymour, Moore, Anderson, Tacha, Baldock, Brorby, Ebel, Theis denying Petitions for rehearing en banc. |
| 10/16/90 | Motion to stay execution of the mandate until 1/11/91 pending filing of a petition for writ of certiorari filed by Arkansas Department State of Arkansas, The Beaver Water District and City of Fayetteville in 89-9503, 89-9507, and 89-9516. |
| 10/19/90 | Response filed by EPA in 89-9503, 89-9507, and 89-9516 to motion to stay execution of the mandate pending a petition for writ of certiorari. |
| 10/23/90 | Response filed by Save the Illinois in 89-9507, Save the Illinois in 89-9516 motion to stay execution of the mandate in 89-9503, 89-9507, 89-9516. |
| 10/23/90 | Response filed by State of Oklahoma in 89-9503, State of Oklahoma in 89-9507, State of Oklahoma in 89-9516 motion to stay execution of the mandate until in 89-9503, 89-9507, 89-9516. |
| 10/24/90 | Reply filed by State of Arkansas in 89-9503, Arkansas Department in 89-9507, State of Arkansas in 89-9507, Arkansas Federation in 89-9507, Arkansas Municipal in 89-9507, State of Arkansas in 89-9516, Arkansas Poultry in 89-9516, Arkansas Federation in 89-9516, Arkansas Municipal in 89-9516 to motion to stay execution of the mandate until in 89-9503, 89-9507, 89-9516. |

| DATE | FILINGS—PROCEEDINGS |
|----------|--|
| 10/31/90 | Order filed by Judges Anderson, Brorby and Theis granting motion to stay execution of the mandate until 1/10/91 pending filing of petition for certiorari, if cert is filed mandate is stayed pending disposition in Supreme Court in 89-9503, 89-9507, 89-9516. |
| 10/31/90 | Amended Affidavit of Shon Simpson filed by Petitioner State of Oklahoma in 89-9503. Intervenor State of Oklahoma in 89-9507 and 89-9516. |
| 2/15/91 | Petition for writ of certiorari filed on 2/8/91 by Intervenor State of Arkansas in 89-9503, Intervenor State of Arkansas in 89-9507, Petitioner State of Arkansas in 89-9516. Supreme Court Number 90-1262. |
| 2/19/91 | Petition for writ of certiorari filed on 2/8/91 by Respondent EPA in 89-9503, Respondent EPA in 89-9507, Respondent EPA in 89-9516. Supreme Court Number 90-1266. |

ENVIRONMENTAL PROTECTION AGENCY

RELEVANT DOCKET ENTRIES

A. AGENCY ORDERS AND FINDINGS

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| A-2 | 05-07-86 | Notice of Designation (AJO) |
| A-3 | 05-30-86 | Order (denying review) (AJO) |
| A-4 | 05-30-86 | Correction to Order Denying Review (AJO) |
| A-6 | 06-16-86 | Designation of ALJ (Chief ALJ) |
| A-8 | 08-21-86 | Order (admitting parties) and Request for Briefs (ALJ) |
| A-9 | 09-22-86 | Order (<i>in limine</i>) (ALJ) |
| A-11 | 11-17-86 | Order (scheduling) (ALJ) |
| A-17 | 05-18-87 | Order on Motions (summary determination and dismiss) (ALJ) |
| A-20 | 07-31-87 | Order (administration of hearing) (ALJ) |
| A-22 | 08-12-87 | Order (excluding testimony of Dr. Meyer; allowing supplemental testimony of FAY) (ALJ) |
| A-23 | 09-01-87 | Order (post-hearing briefing schedule) (ALJ) |
| A-26 | 01-20-88 | Initial Decision (ALJ) |
| A-28 | 06-30-88 | Order on Petitions for Review (ALJ) |
| A-29 | 07-11-88 | Order (briefing) and Motion (for time extension) (ALJ) |
| A-32 | 09-13-88 | Order Denying Motions for Reconsideration (A) |

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| A-33 | 09-22-82 | Decision on Remand (ALJ) |
| A-34 | 10-20-88 | Letter (suspending <i>sua sponte</i> review limit) (AJO) |
| A-35 | 10-28-88 | Order on Motion (denying reconsideration) (ALJ) |
| A-37 | 11-28-88 | Second Order on Petitions for Review (denying petitions) (AJO) |

B. ADMINISTRATIVE PLEADINGS

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| B-2 | 12-10-85 | Request for Evidentiary Hearing (OK) |
| B-3 | 12-12-85 | Supplemental Request for Evidentiary Hearing (STIR) |
| B-4 | 02-12-86 | Notice of Appeal (of Partial Denial of Hearing) (STIR) |
| B-5 | 02-14-86 | Notice of Appeal and Petition for Review (OK) |
| B-7 | 02-20-86 | Letter to R. McCallum re: OK Notice of Appeal (EPA) |
| B-8 | 02-26-86 | Response to STIR Notice of Appeal (EPA) |
| B-9 | 03-06-86 | Response to OK Petition for Review (EPA) |
| B-10 | 03-31-86 | Transmittal of Record to AJO (EPA) |
| B-13 | 07-25-86 | Response to ALJ request for Record Supplement (EPA) |
| B-22 | 08-29-86 | EPA Response to Order of 8-18-86 (OK WQS status) (EPA) |
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| B-30 | 01-06-87 | Production of Documents (FAY) |
| B-31 | 01-06-87 | Production of Documents (OK) |
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| B-33 | 01-09-87 | Prefiled Testimony (Robert Blanz) (ARK) |
| B-34 | 01-09-87 | Prefiled Testimony (Silvester Leonard, Garret Bondy, Larry Champagne, Ancil Jones) (EPA) |
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| B-36 | 01-12-87 | Production of Documents (FAY) |
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| B-40 | 01-30-87 | Index to Permit Record (EPA) |
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| B-50 | 02-19-87 | Response to Request for Production of Documents and Information (EPA) |

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| B-89 | 05-22-87 | Request for Substitution of Witness (David Neleigh for Myron Knudson) (EPA) |
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OKLAHOMA'S
WATER QUALITY STANDARDS
1982

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SECTION 1

INTRODUCTION

In the development of water resources in the last century, the quality of water developed has often been of minor consequence. During recent years, however, an increase in population has resulted in community, industrial and agricultural development, and has caused the scientific and engineering communities to reassess the role of water quality and elevate it to a position of comparable importance with water quantity.

The Oklahoma Water Resources Board's statutory authority and responsibility concerning water pollution and its remedies is expressly provided for under 82 O.S. 1981, §§ 926.1 through 926.13. Under these statutes the Oklahoma Water Resources Board is required to set water quality standards which are practical and in the best public interest and to classify the State's waters with respect to their best present and future uses. These standards are designed to enhance the quality of the waters, to protect their beneficial uses, and to aid in the prevention, control and abatement of water pollution in the State of Oklahoma. Title 82 O.S. 1981, § 926.6(A) provides that these standards and classifications may be modified or revised from time to time. Under Public Law 92-500, Section 303(c)(1) as amended by PL 95-217, the Governor or the State water pollution control agency is required to hold public hearings at least once each three year period for the purpose of reviewing, and as appropriate, modifying and adopting standards.

The Standards specify numerical and narrative criteria for specific streams. This is accomplished by determining which beneficial uses are designated in Appendix A. Then the numerical and narrative criteria designed to protect each beneficial use for the stream must be reviewed in Section 4. The criteria that apply are the most stringent of those reviewed for each parameter.

Since these criteria will protect the most sensitive use assigned, they will protect all designated uses.

The purpose of the Standards is to promote and protect as many beneficial uses as are attainable and to assure that degradation of existing quality of waters of the State does not occur. This is accomplished by incorporating the Standards into the permitting and management process for all dischargers, and using the Standards to determine when a beneficial use is threatened. When standards are exceeded, currently available treatment technologies for point sources and such best management practices as are applicable for nonpoint source pollution should be implemented.

SECTION 2

ADOPTION AND ENFORCEABILITY OF THE STANDARDS

The 1982 Oklahoma Water Quality Standards as encompassed in Section 3 through 9 and Appendices A, B, C and D, are adopted as Rules and Regulations by the Oklahoma Water Resources Board pursuant to the Oklahoma Administrative Procedures Act 75 O.S. 1981, § 301 et. seq. and are fully enforceable under the laws of Oklahoma. These standards shall apply to all waters of the State, as defined in 82 O.S. 1981, § 926.1 (6).

SECTION 3

ANTI-DEGRADATION POLICY

The intent of the Anti-degradation Policy is to protect all waters of the State from quality degradation. Existing instream water uses shall be maintained and protected. No further water quality degradation which would interfere with or become injurious to existing instream water uses shall be allowed. Oklahoma's waters constitute a valuable State resource and shall be protected, maintained and improved for the benefit of all the citizens.

It is recognized that certain waters of the State possess an existing water quality which exceeds those levels necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the water. These high quality waters shall be maintained and protected unless the State decides, after full satisfaction of the intergovernmental coordination, and public participation provisions of the State's continuing planning process, to allow lower water quality as a result of necessary and justifiable economic or social development. Furthermore, where limited degradation is justified, the State shall require that any new point source of pollution or increased load from an existing point source, protect all existing and attainable beneficial uses through the highest statutory and regulatory requirements, and feasible management or regulatory programs pursuant to Section 208 of Public Law 92-500 as amended by PL 95-217 for nonpoint sources.

No degradation shall be allowed in high quality waters which constitute an outstanding resource or in waters of exceptional recreational or ecological significance. These include water bodies located in National and State parks, Wildlife Refuges, and those designated "Scenic Rivers" in Appendix A.

As the quality of Oklahoma waters improves, no degradation of such improved waters shall be allowed. When the yearly mean standard for a specific parameter decreases to the point where the goals listed in Appendix E become attainable, degradation will be prohibited by incorporating the goal as a standard.

In those cases where potential water quality impairment associated with a thermal discharge is involved, the anti-degradation policy and implementation method shall be consistent with Section 316 of Public Law 92-500 as amended by PL 95-217.

SECTION 4

STANDARDS FOR WATER QUALITY

Title 82 O.S. 1981, § 926.2, provides as follows:

"Whereas the pollution of the waters of this state constitute a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life, and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of water, and whereas the problem of water pollution of this state is closely related to the problem of water pollution in adjoining states, it is hereby declared to be the public policy of this state to conserve the waters of the state and to protect, maintain and improve the quality thereof for public water supplies, for propagation of wildlife, fish and aquatic life and for domestic, industrial, recreational, and other legitimate beneficial uses; to provide that no waste be discharged into any waters of the state without first being given the degree of treatment necessary to protect the legitimate beneficial uses of such waters; to provide for the prevention, abatement and control of new or existing water pollution. . ."

Beneficial uses are designated for all of Oklahoma's waters and are protected through the restrictions imposed by the narrative and numerical standards. Some uses require higher quality water than others. When multiple uses are assigned to the same waters, all such uses shall be protected. Beneficial uses will also be protected by permits issued in accordance with requirements of current water quality standards and through practical management or regulatory programs for nonpoint sources. The present beneficial uses designated by these standards to certain waters of the state are:

- Section 4.1 Public and Private Water Supplies
- Section 4.2 Emergency Public and Private Water Supplies
- Section 4.3 Fish and Wildlife Propagation
- Section 4.4 Agriculture
- Section 4.5 Hydroelectric Power Generation
- Section 4.6 Industrial and Municipal Process and Cooling Water
- Section 4.7 Primary Body Contact Recreation
- Section 4.8 Secondary Body Contact Recreation
- Section 4.9 Navigation
- Section 4.10 Aesthetics
- Section 4.11 Smallmouth Bass Fisheries (Excluding Lake Waters)
- Section 4.12 Trout Fisheries (Put and Take)

The numerical standards for perennial streams shall be maintained any time the flow equals or exceeds the seven-day, two-year low flow value. In intermittent streams, the numerical standards shall be maintained when the ambient stream flow is at or greater than 1.0 cfs. Furthermore, at such time as numerical limits do not apply, instream conditions, including dissolved oxygen concentration shall be maintained to prevent nuisance conditions caused by man's activities. Narrative standards [Section 4.3(d), 4.3(h)(1), 4.4, 4.10(c), 4.10(d), and 4.10(e)] shall be maintained at all times and apply to all perennial and intermittent streams. The narrative and numerical standard assigned to a stream is the most stringent required to protect all the beneficial uses designated for that stream.

The control measures for other substances not mentioned in these standards will be based on applicable

Federal and State statutes, rules and regulations and accumulated scientific data on limits above which injury from use occurs. Such control measures when adopted pursuant to 75 O.S. 1981, § 301 et seq. will become a part of these standards.

4.1 PUBLIC AND PRIVATE WATER SUPPLIES

The quality of the waters of the State shall be protected, maintained and improved, when feasible, so that they can be used as a source of public and private raw water supplies.

Drinking water standards dictate the quality of water that should be achieved in a municipal water distribution system without reference to desirable raw water quality. Although it is possible to renovate highly polluted surface waters to these standards, the process required would be both complex and expensive. Raw water quality criteria have been developed to aid in the selection of water sources so that the water supply chosen can, by commonly proven applied treatment processes, achieve the drinking water standards, all within reasonable economic limits.

4.1(a) TOXIC LIMITS

The waters of the State shall be maintained so they will not be toxic to humans. With specific reference to streams and lakes designated as Public and Private Water Supplies, the following numerical limits of contaminants shall not be exceeded.

RAW WATER NUMERICAL LIMITS

PARAMETERS NUMERICAL LIMIT (mg/L)

Inorganic Elements:

| | |
|--------------------|-------|
| Arsenic | .10 |
| Barium | 1.0 |
| Cadmium | .02 |
| Chromium | 0.05 |
| Copper | 1.0 |
| Cyanide | 0.2 |
| Fluoride (at 90°F) | 1.6 |
| Lead | .10 |
| Mercury | 0.002 |
| Nitrates (as N) | 10.0 |
| Selenium | 0.01 |
| Silver | 0.05 |
| Zinc | 5.0 |

Organic Chemicals:

| | |
|----------------------------------|--------|
| Benzidine | 0.001 |
| Detergents (total) | 0.2 |
| Methylene blue active substances | 0.5 |
| Phthalate esters | 0.003 |
| 2,4-D | 0.1 |
| 2,4,5-TP Silvex | 0.01 |
| Endrin | 0.0002 |
| Lindane | 0.004 |
| Methoxychlor | 0.1 |
| Toxaphene | 0.005 |

4.1(b) PESTICIDES

Pesticides shall not be present in such concentrations as to cause the waters of the State to be toxic or carcinogenic to human, animal, plant or aquatic life.

The application of 2,4,5-T for currently approved uses (rangeland and rice), in the proper manner at the approved application rate may result in instream

concentrations in excess of 0.01 mg/L. Therefore, temporary excursions not to exceed 0.1 mg/L will be allowed in the event unforeseen rainfall events occur within 24-hours after application.

4.1(c) RADIOACTIVE MATERIALS

There shall be no discharge of radioactive materials in excess of the limits found in Oklahoma Radiation Protection Regulations, 1969, or its latest revision.

The concentration of gross alpha shall not exceed the specified limit or the naturally occurring concentration, whichever is higher.

The combined dissolved concentration of Radium-226 and Radium-228, and Strontium-90, shall not exceed 5 picocuries/liter, and 8 picocuries/liter, respectively. Gross alpha particle concentrations, including Radium-226 but excluding radon and uranium, shall not exceed 15 picocuries/liter. The gross beta concentration shall not exceed 50 picocuries/liter. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

4.1(d) COLIFORM

The bacteria of the fecal coliform group shall not exceed a monthly geometric mean of 200/100 ml at a point of intake for a public or private water supply. The geometric mean will be determined by multiple tube fermentation or membrane filter procedures based on a minimum of not less than five (5) samples taken over not more than a thirty (30) day period. Further, in no more than 10% of the total samples during any thirty (30) day period shall the bacteria of the fecal coliform group exceed 400/100 ml.

4.1(e) OIL AND GREASE (PETROLEUM AND NON-PETROLEUM RELATED)

For public and Private Water Supplies, the water shall be maintained free from oil and grease and taste and odors that emanate from petroleum products.

4.2 EMERGENCY PUBLIC AND PRIVATE WATER SUPPLIES

During emergencies, those waters designated Emergency Public and Private Water Supplies may be put to use. Each emergency will be handled on a case by case basis, and be thoroughly evaluated by the appropriate State agencies and/or local health authorities.

4.3 FISH AND WILDLIFE PROPAGATION

There are no generalized water quality standards applicable for all kinds of fish and wildlife. Generally, unpolluted waters support a more diverse aquatic community while only tolerant species can survive in comparatively polluted waters. In addition, waters of diverse habitat will exhibit more species than waters with limited habitat variation. The impact of a given chemical or physical constituent on a biological community is not mutually exclusive of other constituents since synergistic interactions are common. The following Narrative and Numerical Standards are designated to promote fish and wildlife propagation.

4.3(a) DISSOLVED OXYGEN

Two dissolved oxygen (DO) standards are designed to protect the diverse warm water fisheries of Oklahoma. Streams designated as Primary Warm Water Fisheries are required at all times to meet a minimum dissolved oxygen of 5.0 mg/L. Streams designated as Secondary Warm Water Fisheries are required at all times to meet a minimum dissolved oxygen of 3.0 mg/L.

Allowable loadings designed to attain these criteria shall be calculated at the low flow value and critical temperature as defined in Appendix C.

4.3(b) TEMPERATURE

At no time shall heat be added to any stream in excess of the amount that will raise the temperature of the receiving water more than 5°F. In streams, temperature determinations shall be made by averaging representative temperature measurements of the cross sectional area of streams at the end of the mixing zone.

In lakes, the temperature of the water column and/or epilimnion, if thermal stratification exists, shall not be raised more than 3°F above that which existed before the addition of heat of artificial origin, based upon the average of temperatures taken from the surface to the bottom or surface to the bottom of the epilimnion, if stratified.

The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained. The maximum temperature due to man-made causes shall not exceed 90°F in warm water streams and lakes except in the segment of Arkansas River from Red Rock Creek to the headwaters of Keystone Reservoir where maximum temperature shall not exceed 94°F.

No artificial heat shall be added such that the receiving water temperature exceeds the maximums specified above.

Privately owned lakes and reservoirs used in the process of cooling water for industrial purposes, are not classified as waters of the State, (See Appendix C) and are exempt from these temperature restrictions, provided the water released from any such lake or reservoir into a stream system shall meet the water quality standards of the receiving stream.

4.3(c) pH (HYDROGEN ION ACTIVITY)

The pH values shall be between 6.5 and 9.0 for Oklahoma's water; unless pH values outside that range are due to natural conditions.

4.3(d) OIL AND GREASE (PETROLEUM AND NON-PETROLEUM RELATED)

All waters of the State shall be maintained free of oil and grease to prevent a visible film of oil or globules of oil or grease on or in the water. Oil and grease shall not be present in quantities that adhere to stream banks and coat bottoms of water courses or which cause deleterious effects to the biota.

4.3(e) POLYCHLORINATED BIPHENYLS (PCBs)

Although PCBs may occur in low concentrations in the water column, these toxic chemicals may accumulate in bottom sediments and tissues of aquatic organisms. Therefore, sediment and tissue analyses should routinely be used to complement water analyses. The instream concentration of PCBs shall not exceed 0.3 micrograms per liter for the waters of the state. When water concentrations are less than 0.3 micrograms per liter, a fish tissue level in excess of 2.0 milligrams per kilogram shall be cause for concern and further investigation.

4.3(f) PESTICIDES

Pesticides shall not be present in such concentrations as to cause the waters of the State to be toxic or carcinogenic to human, animal, plant or aquatic life. The instream concentrations of pesticides shall not exceed the numerical limits provided for the waters of the State.

**PESTICIDE STANDARDS IN THE
WATER COLUMN FOR THE PROTECTION
OF FISH AND WILDLIFE PROPAGATION**

| PARAMETERS | NUMERICAL LIMIT ($\mu\text{g/L}$) |
|-----------------|-------------------------------------|
| Aldrin/Dieldrin | 1.0 |
| Chlordane | 20.0 |
| DDT | 0.2 |
| Endosulfan | 0.2 |
| Endrin | 0.2 |
| Heptachlor | 0.5 |
| Lindane | 2.0 |
| Toxaphene | 1.0 |
| 2,4,5-TP Silvex | 10.0 |

Although pesticides can occur in low concentrations in the water column, they may accumulate in bottom sediments and tissues of aquatic organisms. Therefore, sediment and tissue analyses should routinely be used to complement water analyses. Fish tissue levels in excess of the following alert levels shall be cause for concern and further investigation.

PESTICIDE ALERT LEVELS IN FISH TISSUE

| PARAMETERS | ALERT LEVELS (mg/kg) |
|----------------|----------------------|
| Alrin/Dieldrin | 0.3 |
| Chlordane | 0.3 |
| DDT | 5.0 |
| Endrin | 0.3 |
| Heptachlor | 0.3 |
| Toxaphene | 5.0 |

**4.3(g) DIVERSITY OF BENTHIC
MACROINVERTEBRATES**

The decrease in diversity of benthic macroinvertebrates between an upstream and downstream station, (or downstream before and after discharge from a pollution source) shall not exceed one (1), unless caused by natural conditions or phenomena. The de-

termination of this parameter shall be made in conjunction with the Similarity Index.

The equation used for determining species diversity (\bar{d}) is expressed:

$$\bar{d} = \sum_{i=1}^s (n_i/n) \log_2 (n_i/n)$$

Where (s) equals the total number of taxa in the sample; (n_i) equals the number of individuals per taxon; and (n) equals the total number of individuals of all taxa.

For point sources, a minimum set of six (6) samples must be collected above the discharge point and six (6) samples at the end of the mixing zone; or, if upstream sampling is not applicable, then sampling must be made at the end of the mixing zone (Section 7) before and after commencement of discharge. Samples should be collected from a variety of substrate types ~~if~~ available, but similar substrates must be sampled above and below the discharge. Values of diversity shall not be based on less than one hundred (100) individuals per sample.

Benthos shall be collected with a Surber sampler, Ekman dredge, or comparable sampler. In streams where grab samples do not accurately reflect the benthic assemblage, the artificial substrate sampler shall be used. Artificial substrate samplers shall be of the Hester-Dendy or basket type. A minimum instream duration of six (6) weeks shall be allowed for colonization of artificial substrate samplers.

Where multiple discharges are in close proximity on the stream segment and overlapping of mixing zones occurs, diversity values may be used only in support of other data collected to determine compliance with these standards.

4.3(h) TOXIC SUBSTANCES

- (1) The waters of the State shall be maintained so that they will not be toxic to fish and other terrestrial and aquatic life. Toxic substances in waters of the State shall not be present in quantities which allow significant bioaccumulation and/or biomagnification in the food chain.
- (2) Selection of appropriate concentration limits will insure the continued propagation of fish and wildlife in and around Oklahoma's streams. Aside from the aesthetic qualities of fish and wildlife, it should be realized that the health of these populations of organisms can act as an index which reflects overall environmental welfare and potential health of neighboring human populations.

Assigning concentration limits for the Fish and Wildlife Propagation beneficial use is very complex. Limits are generally assigned based upon laboratory bioassay work designed to determine the 96-hour LC_{50} for a particular aquatic species. There are several physical, chemical and biological problems which arise when attempts are made to develop water quality standards based upon single maximum concentration values. For this reason numerical concentration limits are developed in this section for specified toxics. For toxics not specified, or where data is not available in the following table, concentrations for nonpersistent toxic substances shall not exceed 0.1 of the 96-hour LC_{50} for sensitive indigenous species. Concentrations of persistent toxicants shall not exceed 0.05 of the 96-hour LC_{50} , for sensitive indigenous species. Concentrations of bioaccumulative toxicants shall not exceed 0.01 of the 96-hour LC_{50} for sensitive indigenous species. Bioassay

data for *Pimephales promelas* (Fathead minnow) and/or *Lepomis macrochirus* (Bluegill) shall be used in determining compliance with the above standards.

There are several other criteria besides LC_{50} data by which standards to protect fish and wildlife propagation may be obtained. The laboratory detection limit must be considered. The EPA and Water Quality Management Plan recommended values must be considered. A methodology incorporating all of these criteria was used to produce the segment specific standards presented below which are measured as the total recoverable metals in the water column.

[Table with specific values omitted in printing
Joint Appendix]

4.4 AGRICULTURE (LIVESTOCK AND IRRIGATION)

Proper water quality is essential for irrigation of crops and livestock consumption. The waters of the State shall be maintained so that toxicity does not inhibit continued ingestion by livestock or irrigation of crops. Excessive concentrations of minerals in irrigation water result in damage to crops and produce undesirable soil conditions. High salinity water should be used with best management practices as outlined in "Diagnosis and Reclamation of Saline Soils," United States Department of Agriculture Handbook #60, 1958.

The intake of highly mineralized water by animals can cause physiological disturbances of varying degrees. Lactation and reproduction are disturbed by continuous use of water of unfavorable mineral composition. In some cases, particular ions within total salinity such as nitrate, fluoride, selenium sales and molybdenum may be harmful to livestock.

Sufficient supplies of good quality water have always been critically important in all forms of agricultural

enterprise. Because of the vast number of agricultural uses made of water, this beneficial use is assigned to all Oklahoma streams. It is recognized, however, that many streams are less suitable for irrigation purposes than others. The classification set forth herein is intended only as a guide in allocating this beneficial use, not in limiting the allowable levels for a stream.

| Class | Suitability | Salt Conc. (mg/L) |
|-------|---|-------------------|
| I | suitable under almost all conditions | under 700 |
| II | suitably dependent on crop, soil, climate, etc. | 700-2,100 |
| III | unsuitable under most conditions | over 2,100 |

* Estimated as equivalent to total dissolved solids.

These guidelines are applied to the irrigation beneficial use designation for the yearly mean standard of the dissolved solid concentration in Oklahoma streams. The resulting beneficial use designations are displayed in Appendix A.

For the watering of livestock the limits of tolerance vary depending on the species of animal, kind of salt present, climate, etc. "Safe upper limits" vary from 2,860 mg/L for poultry to 15,600 mg/L for sheep. For temporary use, sheep can tolerate up to 18,600 mg/L. Therefore, no absolute limitation for this beneficial use is appropriate.

For chlorides, sulfates and total dissolved solids, the arithmetic mean of the concentration of the samples taken for a year in a particular segment shall not exceed the historical "yearly mean standard" (see Appendices B and C) generated in that segment. Furthermore, not more than one (1) in twenty (20) samples randomly collected shall exceed the historical value of the "sample standard" generated in that segment. Increased mineralization from other elements such as calcium, magnesium, sodium and their associated anions,

etc., shall be maintained at or below a level that will not restrict any beneficial use.

Historical data are available, only for sparsely distributed sampling stations. Therefore, the data in each segment are averaged, and mean chloride, sulfate, and TDS are presented in Appendix B. It is anticipated that as sources of pollution are identified and adequately addressed, the mineral concentrations may decrease over a period of time. Due to the limited data base it can only be assumed that water within a segment is homogeneous. As more data becomes available, subsegments may be delineated if they differ from the remainder of the segment. In assigning permit limitations based on water quality standards for total dissolved solids, sulfates or chlorides interpolation between monitoring stations will be acceptable where appropriate.

4.5 HYDROELECTRIC POWER GENERATION

This beneficial use is not generally dependent upon water quality.

4.6 INDUSTRIAL AND MUNICIPAL PROCESS AND COOLING WATER

Quality criteria for water used for process or cooling purposes vary with the type of industrial or municipal processes involved. This use will be protected by application of the criteria for other beneficial uses.

4.7 PRIMARY BODY CONTACT RECREATION

Primary Body Contact Recreation involves direct body contact with the water where a possibility of ingestion exists. In these cases the water shall not contain chemical, physical or biological substances in concentrations that are irritating to skin or sense organs or are toxic or cause illness upon ingestion by human beings.

4.7(a) COLIFORM

In waters designed for Primary Body Contact Recreation the following limit for fecal coliform bacteria shall apply only during the recreation period of May 1 to October 1. The standards for Secondary Body Contact Recreation will apply during the remainder of the year.

The bacteria of the fecal coliform group shall not exceed a monthly geometric means of 200/100 ml, as determined by multiple tube fermentation or membrane filter procedures based on a minimum of not less than five (5) samples taken over not more than a thirty (30) day period. Further, in no more than 10% of the total samples during any thirty (30) day period shall the bacteria of the fecal coliform group exceed 400/100 ml.

4.8 SECONDARY BODY CONTACT RECREATION

The water quality requirements for Secondary Body Contact Recreation are usually not as stringent as for Primary Body Contact Recreation. Secondary body contact recreational activities include boating, fishing, wading or other activities where ingestion of water is not anticipated. Waters shall be maintained to be free from human pathogens in numbers which may produce adverse health effects.

4.9 NAVIGATION

This beneficial use is generally more dependent on water quantity than water quality.

4.10 AESTHETICS

To be aesthetically enjoyable, the waters of the State must be free from floating materials and suspended substances that produce objectionable color and turbidity. The waters must be free from noxious odors and tastes,

and from materials that settle to form objectionable deposits, and discharges that produce undesirable or nuisance aquatic life.

4.10(a) COLOR

Waters of the State shall be virtually free from all coloring materials which produce an aesthetically unpleasant appearance. Color producing substances, from other than natural sources, shall be limited to concentrations equivalent to 70 color units (CU).

4.10(b) TURBIDITY

* Turbidity from other than natural sources shall be restricted to not exceed the following numerical limits:

1. Warm Water Streams .. 50 Nephelometric Turbidity Units
2. Warm Water Lakes 25 Nephelometric Turbidity Units
3. Cold Water Streams 10 Nephelometric Turbidity Units

(Those designated as smallmouth bass fisheries
or trout fisheries)

In waters where background turbidity exceeds these values, turbidity from point sources shall be restricted to not exceed ambient levels. Unless due to purely natural or non-man induced conditions the turbidity levels may reasonably be expected to decrease as management of man induced nonpoint sources occur.

These numbers apply to normal stream flow conditions with turbidity levels up to seven days after a high flow event to be decided on a case by case basis.

4.10(c) NUTRIENTS

The total phosphorous concentration and the nitrogen/phosphorous concentration ratio shall not be increased to levels which result in man induced eutrophication problems.

4.10(d) SOLIDS (SUSPENDED AND/OR SETTLEABLE)

The waters of the State shall be maintained so as to be essentially free of floating debris, bottom deposits, scum, foam and other materials, including suspended substances of a persistent nature, from other than a natural source.

4.10(e) TASTE AND ODOR

Taste and odor producing substances from other than natural origin shall be limited to concentrations that will not interfere with the production of a potable water supply by modern treatment methods or produce abnormal flavors, colors, tastes and odors in fish flesh or other edible wildlife or result in offensive odors in the vicinity of the water, or otherwise interfere with beneficial uses.

4.11 SMALLMOUTH BASS FISHERIES (EXCLUDING LAKE WATERS)

Water which will support smallmouth bass fisheries is characterized by a lower temperature and higher dissolved oxygen concentration. The presence of smallmouth bass generally indicates clean water conditions. Numerical standards shall be maintained at all times in smallmouth bass fisheries.

4.11(a) DISSOLVED OXYGEN

The dissolved oxygen concentration shall not be less than 6.0 mg/L for those waters designated as smallmouth bass fisheries.

It is recognized that diurnal fluctuations of dissolved oxygen occur in natural aquatic systems due to primary production and respiration processes. Due to natural fluctuations, a 1.0 mg/L dissolved oxygen concentration deficit shall be allowed for not more than eight (8) hours during any twenty-four (24) hour period.

4.11(b) TEMPERATURE

The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained. The maximum temperature due to man-made causes shall not exceed 84°F in smallmouth bass streams.

4.12 TROUT FISHERIES (PUT AND TAKE)

The maintenance of trout fisheries (put and take) generally requires cool and high quality waters. A higher dissolved oxygen concentration is required for this beneficial use than for warm water fisheries. Numerical standards shall be maintained at all times in trout fisheries.

4.12(a) DISSOLVED OXYGEN

The dissolved oxygen concentration shall not be less than 6.0 mg/L for those waters designated as trout fisheries. Due to natural fluctuations, a 1.0 mg/L dissolved oxygen concentration deficit shall be allowed for not more than eight (8) hours during any twenty-four (24) hour period.

4.12(b) TEMPERATURE

The normal daily and seasonal variations that were present before the addition of heat from other than natural sources shall be maintained. The maximum temperature due to man-made causes shall not exceed 68°F in trout streams.

SECTION 5

BENEFICIAL USE LIMITATIONS

All streams and bodies of water designated as (a) are protected by prohibition of any new point source discharge of wastes or increased load from an existing point source except under conditions described in Section 3.

All streams designated by the State as "scenic river areas," and such tributaries of those streams as may be appropriate will be so designated. Best management practices for control of nonpoint source discharge should be initiated when feasible.

SECTION 6

BENEFICIAL USE DESIGNATIONS FOR GROUNDWATER

Waters are classified according to the uses for which they are suited. Waters of the State include both surface and groundwater. Existing groundwater beneficial uses shall be protected from degradation. The maximum total dissolved solids concentration which shall be allowed is 5,000 mg/L. Where multiple uses are assigned to a groundwater basin (see definition: Groundwater Basin) all such uses shall be protected. At this time data is available and uses have been assigned to the twenty-one major basins shown in Appendix F. The data base for groundwater quality and quantity is insufficient to assign beneficial uses to Oklahoma's minor groundwater basins. It is anticipated that more data will be collected and compiled in the near future. At that time groundwater use classifications for the remaining basins will be added. The following beneficial use classifications are assigned to Oklahoma's major basins as shown in Appendix F.

CLASSIFICATIONS

1. Irrigation
2. Municipal and Domestic
3. Industrial
4. Recreation
5. Commercial
6. Fish and Wildlife

6.1 IRRIGATION

These are groundwaters suitable for irrigation of crops usually grown in Oklahoma. Highly mineralized groundwaters can damage crops and cause undesirable soil conditions. High salinity groundwaters should only be used in accordance with Best Management Practices such as those outlined in "Diagnosis and Reclamation of Saline Soils," U.S. Department of Agriculture Handbook, #60, 1958.

6.2 MUNICIPAL AND DOMESTIC

These waters are suitable for potable water supplies and include waters used for housing development and multiple-unit domestic use. Class I waters are uncontaminated and Class II waters require disinfection. There may be waters which do not fit into either the Class I or Class II classifications but which may be suitable for domestic water supply use after special treatment.

(a) Class I—Uncontaminated Groundwaters:

These are groundwaters which receive a high degree of natural protection and meet, without treatment, all Oklahoma drinking water regulations.

(b) Class II—Waters Requiring Disinfection:

These are groundwaters which, after receiving approved disinfection such as simple chlorination or its equivalent will meet Oklahoma drinking water regulations.

6.3 INDUSTRIAL

Industrial use is the use of groundwater in processes designed to convert materials of a lower order of value into forms having greater useability and commercial value, including water necessary for the development of electric power and drilling of oil and gas wells.

Quality criteria for water used for cooling purposes vary with the type of industrial processes involved. This use will be protected by application of the Water Quality Standards.

6.4 RECREATION

These are groundwaters pumped to the surface to use for swimming, fishing, hunting, or other forms of water recreation.

6.5 COMMERCIAL

Commercial use includes but is not limited to water for laundries, cafes, motels, institutions, rural water districts, feed yards, food processing, and sale of groundwater by a permit holder.

6.6 FISH AND WILDLIFE

Includes groundwater pumped to the surface to be used for propagation of fish and wildlife.

SECTION 7

MIXING ZONES AND ZONES OF PASSAGE

7.1 MIXING ZONES

When a liquid of different quality than the receiving water is discharged to an aquatic system, a mixing zone is formed. The concept of mixing zone is recognized as a necessary element of Oklahoma's Water Quality Standards. In the case of perennial streams, the mixing zone extends downstream a distance equivalent to thirteen (13) times the width of the water at the point of effluent discharge. The concentration of toxic substances in a mixing zone shall not exceed the 96-hour LC_{50} for sensitive indigenous species. Mixing zones in lakes and intermittent streams shall be designated on a case by case basis. It is recognized that the water quality

in the mixing zone may be unsuitable for certain beneficial uses. Where overlapping mixing zones due to multiple outfalls occur, the total length of the mixing zone will extend thirteen stream widths from the downstream discharge.

7.2 ZONES OF PASSAGE

All discharges shall be regulated to insure that at the outfall and throughout the mixing zone, a zone of passage shall be maintained within the stream that shall be no less than seventy-five percent (75%) of the cross-sectional area or flow volume, whichever is more beneficial to the free-swimming and drifting organisms. Water quality standards shall be maintained throughout the zone of passage. Zones of passage in lakes and intermittent streams shall be designated on a case by case basis.

SECTION 8

TESTING PROCEDURES

All methods of sample collection, preservation, and analysis used in applying any of the rules and regulations in these standards shall be in accordance with those prescribed in "Standard Methods For The Examination of Water and Wastewater," Fifteenth Edition, or any subsequent edition, "Methods for Chemical Analysis of Water and Waste" and "Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Waste Water," or other generally accepted procedure approved by the Oklahoma Water Resources Board.

SECTION 9

ERRORS AND SEPARABILITY

Errors resulting from inadequate and erroneous data, human or clerical oversight will be subject to correction by the Oklahoma Water Resources Board. The dis-

covery of such errors does not render the remaining and unaffected standards invalid.

If any provision of these standards, or the application of any provision of these standards to any person or circumstances is held to be invalid, the application of such provisions to other persons and circumstances and the remainder of the standards shall not be affected thereby.

* * * *

APPENDIX A

BENEFICIAL USES OF VARIOUS STREAM SEGMENTS

The following portions of Section 4, Standards for Water Quality, will apply to those streams not listed in this appendix: 4.3(d), 4.3(h) (1), 4.4, 4.10(a), 4.10(c), 4.10(d), and 4.10(e).

The concept of goals is incorporated in the beneficial use designations. A goal represents a beneficial use which may be attained at some future time. Attainment is based upon several factors, including reduction of natural sources, advances in treatment technologies for point sources, and further implementation of best management practices to control nonpoint sources.

Beneficial uses are assigned to specific streams in this appendix.

An asterisk (*) designates those streams in which further revisions are pending. These are streams for which it is determined that detailed study and analysis is required prior to major revisions to the designated beneficial uses. For these streams the current uses will remain in effect and administrative procedures will be utilized to improve the streams to the maximum extent possible. Each stream will receive a detailed study and review prior to the 1985 review of the standards.

This group is composed of two categories:

1. Those streams for which biological review did not reveal a clear understanding of the character of the stream.
2. Those streams for which a great amount of public concern has been expressed and which additional study and evaluation is needed to clarify the socio-economic desires for additional waste treatment.

A triangle (▲) designates those streams where a literature survey indicates the need for a re-evaluation of assigned beneficial uses, but where the biological review has not yet been accomplished.

In addition to the above there are many streams which will require additional study but have not yet been identified.

[Maps Omitted In Printing]

W.Q. Basin No. 1, Sheet 1

UNOFFICIAL USE CODES

- Indicates designated beneficial use
- (1) Indicates a goal for the continuous attainment of the beneficial use (the beneficial use when dilution capacity is sufficient)
- 1 Primary warm water fishery
- 2 Secondary warm water fishery with primary warm water fishery as a goal
- 3 Class I irrigation
- 4 Class II irrigation with class I irrigation as a goal if natural conditions permit
- 5 Class III irrigation with class I irrigation as a goal if natural conditions permit

| STREAM ORDER | | | | | | STR |
|---|---|---|---|---|---|------|
| 1 | 2 | 3 | 4 | 5 | 6 | SECT |
| ARKANSAS RIVER from mouth of Canadian River to the mouth of the Verdigris including Webbers Falls Reservoir | | | | | | 120 |
| Dirty Creek | | | | | | 120 |
| Lower ILLINOIS RIVER from headwaters of Robert S. Kerr Reservoir to Tenkiller Dam | | | | | | 121 |
| Upper ILLINOIS RIVER from Tenkiller Dam, including Tenkiller Reservoir, to 650 foot elevation level | | | | | | 121 |
| Caney Creek | | | | | | 121 |
| BARREN FORK to Hwy 59 | | | | | | 121 |
| Tyner Creek | | | | | | 121 |
| Court House Creek | | | | | | 121 |
| Ben Knight Creek | | | | | | 121 |
| BARREN FORK, Hwy 59 to Arkansas State Line | | | | | | 121 |
| Shell Branch | | | | | | 121 |
| Evansville Creek | | | | | | 121 |
| Upper ILLINOIS RIVER above 650 foot elevation level | | | | | | 121 |
| Flint Creek | | | | | | 121 |
| Ballard Creek | | | | | | 121 |
| GREENLEAF CREEK including Greenleaf Lake | | | | | | 120 |

| AM ENT | BENEFICIAL USES | | | | | | | | | | | | | LIMITATIONS | REMARKS |
|-----------|-------------------------------|------------------------|-----------------------------|-------------|---------------------|---------------------|--------------------|----------------------|------------|------------|------------------|-----------------|---|--------------|---------|
| | PUBLIC & PRIVATE WATER SUPPLY | EMERGENCY WATER SUPPLY | FISH & WILDLIFE PROPAGATION | AGRICULTURE | HYDROELECTRIC POWER | M & I COOLING WATER | PRIMARY RECREATION | SECONDARY RECREATION | NAVIGATION | AESTHETICS | SMALL MOUTH BASS | TROUT FISHERIES | | | |
| 00 | • | 1 | • | • | • | • | • | • | | | | | | | |
| 00 | • | | • | | • | • | • | • | | | | | | | |
| 00 | • | 1 | 1 | | | | • | • | • | • | • | | a | | |
| 00 | • | 1 | 1 | • | • | • | | • | • | • | | | | | |
| 00 | • | 1 | • | | • | • | • | • | • | • | | | | | |
| 00 | • | 1 | 1 | | | • | • | • | • | • | | | a | Scenic River | |
| 00 | • | 1 | 1 | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | • | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | • | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | 1 | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | 1 | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | 1 | | | • | • | • | • | • | | | a | Scenic River | |
| 00 | • | 1 | • | | | • | • | • | • | • | | | a | Scenic River | |
| 00 | • | 1 | • | | | • | • | • | • | • | | | a | | |
| 00 | • | 1 | • | | • | • | | • | | | | | a | | |



* * * *

APPENDIX C

DEFINITIONS OF POLLUTION
RELATED TERMS

ABATEMENT

Reduction of the degree or intensity of pollution.

ALLOWABLE LOAD

For perennial streams—the allowable load for oxygen demanding substances shall be based on attaining an instream DO of 5.0 mg/L for primary warm water fisheries, 3.0 mg/L for secondary warm water fisheries, and 6.0 mg/L for those waters designated smallmouth bass or trout fisheries, at and above the seven-day, two-year low flow value, and at the critical temperature.

For intermittent streams—the allowable loading for oxygen demanding substances shall be based on attaining an instream DO of 5.0 mg/L for primary warm water fisheries, 3.0 mg/L for secondary warm water fisheries, and 6.0 mg/L for those waters designated smallmouth bass or trout fisheries, at and above 1.0 cfs, and at the critical temperature.

ALPHA PARTICLE

A positively charged particle limited by certain radioactive materials. It is the least penetrating of the three common types of radiation (alpha, beta, and gamma) and usually is not dangerous to plants, animals or humans.

AMBIENT

Surrounding, especially of or pertaining to the environment about an entity, but undisturbed and unaffected by it.

ANTI-DEGRADATION CLAUSE

A provision in water quality laws that prohibits deterioration of water quality in areas where pollution levels are presently below those allowed.

AQUIFER

A formation that contains sufficient saturated, permeable material to yield significant quantities of water to wells and springs. This implies an ability to store and transmit water; unconsolidated sands and gravels are a typical example.

ASSIMILATIVE CAPACITY

The amount of pollution a stream can receive and still recover without permanent damage or alteration of beneficial uses.

BENTHIC MACROINVERTEBRATES

Invertebrate animals that are large enough to be seen by the unaided eye and can be retained by a Standard No. 30 sieve, and live at least part of their life cycles within or upon available substrates in a body of water or water transport system.

BETA PARTICLE

A negatively charged elementary particle emitted by radioactive decay that may cause skin burns. It is easily stopped by a thin sheet of metal.

CARCINOGENIC

Cancer producing.

COLIFORM GROUP ORGANISMS

All of the aerobic and facultative anaerobic gram-negative, non-spore-forming rod shaped bacteria that ferment lactose broth with gas formation within 48 hours at 35°C.

COLOR

Color as used herein means true color as well as apparent color. True color is the color of the water from which turbidity has been removed. Apparent color includes not only the color due to substances in solution (true color), but also that color due to suspended matter.

CONSERVATIVE ELEMENT

A substance which persists in the environment, having characteristics which are resistant to ordinary biological degradation.

CRITICAL TEMPERATURE

The seven-day maximum temperature likely to occur with a 50% probability each year, or 90°F.

DISSOLVED OXYGEN (DO)

The amount of oxygen dissolved in water at any given time, depending upon the water temperature, the partial pressure of oxygen in the atmosphere in contact with the water, the concentration of dissolved salts in the water, and the physical aeration of the water.

EPILIMNION

The uppermost homothermal region of a stratified lake.

EUTROPHICATION (natural)

The normally slow aging process by which a lake evolves into a bog or marsh and ultimately assumes a terrestrial state. During eutrophication the lake becomes so rich in nutritive compounds (especially nitrogen and phosphorus) that algae and other microscopic plant life become superabundant, thereby

“choking” the lake, and causing the lake to advance in seral stages.

FECAL COLIFORM

A group of organisms common to the intestinal tracts of man and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

GEOMETRIC MEAN

$$G_m = \sqrt[n]{B_1 \times B_2 \times \dots \times B_n}$$

Where: n = number of samples
and B_n = the bacterial count for n^{th} sample.

GROUNDWATER BASIN

For the purposes of these standards a “groundwater basin” is a physiographic unit containing a system of interconnected aquifers forming a groundwater reservoir. This definition is not applicable for the purposes of groundwater use permitting under the Oklahoma Groundwater Law.

INTERMITTENT STREAM

A stream or reach of a stream that flows only at certain times of the year. In such streams the runoff from the watershed is smaller than the ground evaporation and seepage losses in the ground. For the purposes of these standards, 7 day 2 year low flow of 0 will be considered intermittent.

LC₅₀

Lethal Concentration—the concentration of a toxicant in an external medium that is lethal to fifty percent of the test animals for a specified period of exposure.

NATURAL SOURCE

Source of contamination which is not man induced.

NEPHELOMETRIC TURBIDITY UNIT (NTU)

This method is based upon a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension (formazin). The higher the intensity of scattered light, the higher the turbidity. Readings in NTU's are considered comparable to the previously reported Jackson Turbidity Units (JTU).

NON-CONSERVATIVE ELEMENT

A substance which undergoes degradation or change in the environment other than dilution.

NONPOINT SOURCE

A source of pollution without a well defined point of origin.

NUTRIENTS

Elements of compounds essential as raw materials for organisms growth and development; these include carbon, oxygen, nitrogen and phosphorus.

POLYCHLORINATED BIPHENYLS (PCBs)

Polychlorinated biphenyls, a group of organic compounds (206 possible) which is constructed of two phenyl rings and more than one chlorine atom. PCBs are used as an electrical insulating fluid in capacitors and transformers, and in the manufacture of plastics.

PERENNIAL STREAMS

A stream or reach of a stream that flows continuously throughout the year either due to watershed runoff or to inflow of the ground water to the stream.

PICOCURIE (pCi)

That quantity of radioactive material producing 2.22 nuclear transformations per minute.

POINT SOURCE

Any discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, well, discrete fissure, container, rolling stock or concentrated animal feeding operation from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

POLLUTION

Contamination or other alteration of the physical, chemical or biological properties of any natural waters of the State, or such discharge of any liquid, gaseous or solid substance into any waters of the State as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life. (82 O.S. 1981, § 926.1 (1))

PRIMARY WARM WATER FISHERIES

Water quality and habitat adequate to support sensitive warm water fish species in abundance. Environment suitable for the full range of warm water benthos.

SALINITY

The degree of salt in water.

SAMPLE STANDARD

The arithmetic mean of historical data plus two standard deviations of the mean.

SECONDARY WARM WATER FISHERY

Water quality and habitat not adequate to support sensitive warm water fish in abundance. This can be as a result of two conditions:

- a) Habitat and natural physical-chemical characteristics not suitable for the full range of aquatic organisms.
- b) Man induced conditions preclude the attainment of a full range of aquatic organisms including sensitive warm water fish species in abundance.

SEVEN-DAY, TWO-YEAR LOW FLOW

A seven-day, two-year low flow is specified as the design flow for determining allowable discharge load to a stream. The flow is calculated as a moving average of seven consecutive days for each year in a given record. These seven-day low flow values are ranked in ascending order. An order number (m) is calculated based upon the number of years record (n), with a recurrence interval (R) of two years, as $m = (n+1)/R$, where $R =$ two years. A value of flow corresponding to the m^{th} order is taken as the seven-day, two-year low flow for that historical data.

STANDARD DEVIATION

A statistical measure of the dispersion around the arithmetic mean of the data.

SIMILARITY INDEX

Where:

$$S = \frac{2C}{A+B}$$

A = No. of species in the sample at upstream station.
 B = No. of species in the sample at downstream station.
 C = No. of species common to both A and B.

SYNERGISTIC EFFECT

Indicates the presence of cooperative pollutant action such that the total effect is greater than the sum of the effects of each pollutant taken individually.

THERMAL POLLUTION

Degradation of water quality by the introduction of heated effluent. Primarily a result of the discharge of cooling waters from industrial processes particularly from electrical power generation.

THERMAL STRATIFICATION

Horizontal layers of different densities produced in a lake due to temperature.

WASTES

Industrial waste and all other liquid, gaseous or solid substances which may pollute or tend to pollute any waters of the State. (82 O.S. Supp. 1976, § 926.1 (2))

WATERS OF THE STATE

All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations

of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this State or any portion thereof, except privately owned reservoirs used in the process of cooling water for industrial purposes, provided that water released from any such reservoir into a stream system of the State shall be and become waters of the State. (82 O.S. Supp. 1976, § 926.1 (6))

YEARLY MEAN STANDARD

The arithmetic mean of historical data plus one standard deviation of the mean.

OKLAHOMA'S
WATER QUALITY STANDARDS

1985

* * *

SECTION 3

ANTI-DEGRADATION POLICY

Oklahoma's waters constitute a valuable State resource and shall be protected, maintained and improved for the benefit of all the citizens. The intent of the Anti-degradation Policy is to protect all waters of the State from degradation of water quality. Existing beneficial uses shall be maintained and protected. No water quality degradation, which will interfere with the attainment or maintenance of designated beneficial uses shall be allowed.

It is recognized that certain waters of the State possess existing water quality which exceeds those levels necessary to support propagation of fishes, shellfishes, wildlife, and recreation in and on the water. These high quality waters shall be maintained and protected.

No degradation shall be allowed in waters which constitute an outstanding resource or in waters of exceptional recreational or ecological significance. These include water bodies located in National and State parks, forests, wilderness areas, wildlife management areas, wildlife refuges, and streams designated as "critical habitat" under the Federal Endangered Species Act listed in Appendix B. These also include streams designated as "critical habitat" under the Federal Endangered Species Act listed in Appendix B. These also include streams designated Scenic River in Appendix A.

As the quality of Oklahoma waters improve, no degradation of such improved waters shall be allowed. When the moving yearly mean standard for a specific parameter improves to the point where the goals listed in Appendix C become attainable, degradation will be prohibited by incorporating the goal as a standard.

In cases where potential water quality impairment associated with a thermal discharge is involved, the anti-degradation policy and implementation method shall be consistent with Section 316 of Public Law 92-500 as amended by PL 92-217.

* * * *

SECTION 7.11 BENEFICIAL USE LIMITATIONS

All streams and bodies of water designated as (a) in Appendix A are protected by prohibition of any new point source discharge which increases pollutant loading or increased load from an existing point source. All stream segments designated in Appendix A as "scenic river" and the tributaries of those stream segments are hereby designated as (a). Best management practices for control of nonpoint source discharges should be initiated in these watersheds.

* * * *

Permit No. AR0020010

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINA- TION SYSTEM

In compliance with the provisions of the Clean Water Act, (33 U.S.C. 1251 et. seq., the "Act"),

City of Fayetteville
P.O. Drawer F
Fayetteville, Arkansas 72701

is authorized to discharge from a facility with outfalls located at approximately:

White River Outfall No. 001 Latitude: 36°05'00"N
Longitude: 94°05'00"W

Mud Creek Outfall No. 002 Latitude: 36°05'25"N
Longitude: 94°06'38"W

to receiving waters named the White River-Outfall No. 001 (Segment 4K-White River Basin) and Mud Creek-Outfall No. 002 (Segment 3J-Arkansas River Basin)

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, and IV hereof.

This permit shall become effective on December 10, 1985.

This permit and the authorization to discharge shall expire at midnight, December 9, 1990.

Signed this 5th day of November 1985.

/s/ Myron O. Knudson
MYRON O. KNUDSON, P.E.
Director, Water Management Division (6W)

Permit No. AR0020010

PART I

SECTION A. EFFLUENT LIMITATIONS AND
MONITORING REQUIREMENTS

1. Final Effluent Limits

a. During the period beginning date of issuance and lasting through date of expiration the permittee is authorized to discharge to the White River from Outfall No. 001.

Such discharges shall be limited and monitored by the permittee as specified below:

| Effluent Characteristic | Discharge Limitations | | |
|---|-----------------------|-------------------|-------------|
| | kg/day (lbs/day) | Other Units | |
| | 30-day Avg | 30-day Avg | 7-day Avg |
| Flow * | N/A | * mgd | * mgd |
| Carbonaceous Biochemical Oxygen Demand (CBOD ₅) | | | |
| December 1-March 31 | 235 (517) | 10 mg/l | 15 mg/l |
| April 1-November 30 | 117 (259) | 5 mg/l | 7 mg/l |
| Total Suspended Solids | | | |
| December 1-March 31 | 352 (776) | 15 mg/l | 22 mg/l |
| April 1-November 30 | 117 (259) | 5 mg/l | 7 mg/l |
| Ammonia Nitrogen | | | |
| December 1-March 31 | 117 (259) | 5 mg/l | 7 mg/l |
| April 1-November 30 | 47 (103) | 2 mg/l | 3 mg/l |
| Total Phosphorous | 23 (52) | 1 mg/l | 2 mg/l |
| Fecal Coliform | | | |
| October 1-March 31 | N/A | 1000/100 ml | 2000/100 ml |
| April 1-September 30 | N/A | 200/100 ml | 400/100 ml |
| Residual Chlorine | N/A | .05 mg/l, maximum | |
| Dissolved Oxygen | | | |
| December 1-March 31 | N/A | 10 mg/l, minimum | |
| April 1-November 30 | N/A | 8 mg/l, minimum | |

* Effluent flow must be monitored and reported. White River flow near Fayetteville (U.S.G.S. Station No. 7048600) must also be monitored daily and reported (30-day and 7-day averages). No discharge to the White River is permitted unless the stream flow is 50 cfs or more.

| <u>Effluent Characteristic</u> | <u>Monitoring Requirements</u> | |
|---|--------------------------------|-------------------|
| | Measurement | Sample |
| | Frequency | Type |
| Flow * | Daily | Totalizing Meter |
| Carbonaceous Biochemical Oxygen Demand (CBOD ₅) | One/Day | 12-Hour Composite |
| Total Suspended Solids | One/Day | 12-Hour Composite |
| Ammonia Nitrogen | One/Day | 12-Hour Composite |
| Total Phosphorous | One/Day | 12-Hour Composite |
| Fecal Coliform Bacteria | One/Day | Grab |
| Residual Chlorine | One/Day | Grab |
| Dissolved Oxygen | One/Day | Grab |

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by grab samples collected at the frequency shown above for Total Suspended Solids.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit.

b. During the period beginning date of issuance and lasting through date of expiration the permittee is authorized to discharge to Mud Creek from Outfall No. 002.

Such discharges shall be limited and monitored by the permittee as specified below:

* Effluent flow must be monitored and reported. White River flow near Fayetteville (U.S.G.S. Station No. 7048600) must also be monitored daily and reported (30-day and 7-day averages). No discharge to the White River is permitted unless the stream flow is 50 cfs or more.

| Effluent Characteristic | Discharge Limitations | | |
|---|-----------------------|-------------------|-------------|
| | kg/day (lbs/day) | Other Units | |
| | 30-day Avg | 30-day Avg | 7-day Avg |
| Flow * | | * mgd | * mgd |
| Carbonaceous Biochemical Oxygen Demand (CBOD ₅) | | | |
| December 1-March 31 | 235 (517) | 10 mg/l | 15 mg/l |
| April 1-November 30 | 117 (259) | 5 mg/l | 7 mg/l |
| Total Suspended Solids | | | |
| December 1-March 31 | 352 (776) | 15 mg/l | 22 mg/l |
| April 1-November 30 | 117 (259) | 5 mg/l | 7 mg/l |
| Ammonia Nitrogen | | | |
| December 1-March 31 | 117 (259) | 5 mg/l | 7 mg/l |
| April 1-November 30 | 47 (103) | 2 mg/l | 3 mg/l |
| Total Phosphorous | 23 (52) | 1 mg/l | 2 mg/l |
| Fecal Coliform Bacteria | | | |
| October 1-March 31 | N/A | 1000/100 ml | 2000/100 ml |
| April 1-September 30 | N/A | 200/100 ml | 400/100 ml |
| Residual Chlorine | N/A | .05 mg/l, maximum | |
| Dissolved Oxygen | | | |
| December 1-March 31 | N/A | 10 mg/l, minimum | |
| April 1-November 30 | N/A | 8 mg/l, minimum | |

| Effluent Characteristic | Monitoring Requirements | |
|---|--------------------------|-------------------|
| | Measurement Frequency | Sample Type |
| Flow * | Daily | Totalizing Meter |
| Carbonaceous Biochemical Oxygen Demand (CBOD ₅) | One/Day | 12-Hour Composite |
| Total Suspended Solids | One/Day | 12-Hour Composite |
| Ammonia Nitrogen | One/Day | 12-Hour Composite |
| Total Phosphorous | One/Day | 12-Hour Composite |
| Fecal Coliform Bacteria | One/Day | Grab |
| Residual Chlorine | One/Day | Grab |
| Dissolved Oxygen | One/Day | Grab |

* Effluent flow must be monitored and reported. See Part III for additional requirements and limitations.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by grab samples collected at the frequency shown above for Total Suspended Solids.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit.

SECTION B. MONITORING AND REPORTING

1. The permittee shall effectively monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

a. If any seven-day average value exceeds the effluent limitations specified in Part I.A., the permittee shall report the excursion in accordance with the requirements of Part II. A.2.

b. Any 30-day or 7-day average reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I.A. shall constitute evidence of violation of such effluent limitation and of this permit.

c. The Regional Administrator may at his discretion require additional sampling, reporting, or monitoring including but not limited to the taking of at least one 12 hour composite sample and/or increased frequency of sampling.

d. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

2. *Reporting*

a. All reporting (including written notifications, oral notifications, and discharge monitoring reports) required by this permit shall, unless otherwise specified, be made concurrently to:

- (1) Director
Arkansas Department of Pollution
Control and Ecology
8001 National Drive
P.O. Box 9583
Little Rock, Arkansas 72209
- (2) Director
Water Management Division (6W)
U.S. Environmental Protection Agency,
Region VI
InterFirst Two Building
1201 Elm Street
Dallas, Texas 75270

b. Monitoring information required shall be submitted on Discharge Monitoring Report Form EPA 3320-1.

(1) Duplicate original Discharge Monitoring Report forms, properly completed and signed (as per paragraph [2] below), must be submitted monthly.

(2) Each submitted Discharge Monitoring Report shall be signed by a duly authorized agent of the permittee in accordance with Part II. B.13.

(3) Reporting periods shall end on the last day of the month.

(4) The first Discharge Monitoring Report(s) shall represent facility operations from the effective date of the permit through the last day of the month.

(5) Thereafter, the permittee is required to make regular monthly reports as described above and shall sub-

mit those reports no later than the 25th day of the month following each reporting period.

(6) All values required on EPA Form 3320-1 shall be reported in accordance with the "General Instructions" provided on that form.

(7) Other measurements of oxygen demand (e.g., TOC and COD) may be substituted for five-day Biochemical Oxygen Demand (CBOD₅) where the permittee can demonstrate long-term correlation of the method with CBOD₅ values. Details of correlation procedures employed must be submitted and prior approval granted by the permitting authority for this procedure to be acceptable. Data reported must also include evidence to show that the proper correlation continues to exist after approval.

c. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

3. *Test Procedures*

a. All sampling and analytical methods used to meet the monitoring requirements specified above shall conform to Section 304(h) of the Act and any regulations promulgated therefrom.

b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted.

c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

d. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or both.

e. The analytical method used for Carbonaceous Biochemical Oxygen Demand shall conform to the procedure specified in "Standard Methods for the Examination of Water and Wastewater," 15th Edition.

4. *Recording*

The permittee shall record for each measurement or sample taken pursuant to the requirements of this permit the following information:

- a. the date, exact place and time of sampling;
- b. the dates analyses were performed;
- c. who performed the analyses;
- d. the analytical techniques or methods used,
- e. the results of all required analyses, and
- f. the instantaneous flow at grab sample collections.

5. *Additional Monitoring by Permittee*

If the permittee monitors any parameters more frequently than is required by this permit, he shall include the results of such monitoring in the calculation and reporting of the values required in the Discharge Monitoring Report (EPA Form 3320-1 [10-77]). Such increased

frequency shall be indicated on the Discharge Monitoring Report form.

6. *Records Retention*

The permittee shall retain records of all monitoring information and records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Administrator at any time.

Records of monitoring information shall conform to the requirements of 40 CFR 122.7(j).

PART II

SECTION A. MANAGEMENT REQUIREMENTS

1. *Change in Discharge*

a. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

b. Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges to the treatment system that may result in new or increased discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. *Noncompliance Notification*

a. The permittee shall report all instances of noncompliance not reported under Part II, 2.b. below at the

time monitoring reports are submitted. The reports shall contain the following information:

- (1) A description of the noncompliance and its cause;
- (2) The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
- (3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The following must be reported within 24 hours:

- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
- (2) Any upset which exceeds any effluent limitations in the permit; and
- (3) Violation of a maximum daily discharge limitation for any toxic pollutant or hazardous substance listed under Part III, A. to be reported within 24 hours.

Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain the information listed in Part II, A.2.a. above.

The Regional Administrator may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

The permittee shall also report any other noncompliance which may endanger health or the environment (such as fish kills or other instances when timely reporting is desirable) in this manner.

3. *Bypassing*

Bypass or diversion of wastes from any portions of the treatment facilities is prohibited unless the following conditions are met:

a. Bypass is unavoidable to prevent loss of life, personal injury or severe property damage;

b. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance;

c. The permittee submits notice of an unanticipated bypass as required in Part II, A.2.b.; and

d. The permittee submits prior notice of an anticipated bypass, if possible at least ten days before the date of the bypass.

4. *Upsets*

An upset constitutes an affirmative defense to an enforcement action brought for noncompliance with technology-based permit effluent limitations if the following requirements are met.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:

a. An upset occurred and that the permittee can identify the specific cause(s) of the upset;

b. The permitted facility was at the time being properly operated;

c. The permittee submitted notice of the upset as required in Part II, A.2.b. of this permit; and

d. The permittee complied with any remedial measures under Part II, B.2.

5. *Duty to Reapply*

Permittees who wish to continue to discharge subsequent to the expiration date of their permit must apply for reissuance of the permit using proper forms, not less than 180 days prior to the permit expiration date.

6. *Transfer of Ownership or Control*

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall submit a written agreement, at least 30 days in advance of the proposed transfer date, containing a specific date for transfer of permit responsibility and coverage between the current and new permittees.

7. *Other Information*

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report, it shall promptly submit such facts or information.

SECTION B. MANAGEMENT RESPONSIBILITIES

1. *Duty to Comply*

a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the appropriate Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

c. The Act provides that any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing sections 301, 302, 306, 307, or 308 of the Act is subject to a fine of not less than \$2,500 or more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both.

2. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

3. Duty to Halt or Reduce not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Permit Flexibility

a. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

b. After notice and opportunity for a hearing, this permit may be modified, suspended, or terminated during its term in accordance with 40 CFR 122.15-16.

5. Facility Operation and Quality Control

a. All waste collection, control, treatment and disposal facilities shall be operated in a manner consistent with the following:

(1) At all times, all facilities or systems of control shall be maintained in good working order and operated as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants;

(2) The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance and testing functions required to insure compliance with the conditions of this permit;

(3) Maintenance of treatment facilities that results in degradation of effluent quality shall be scheduled during noncritical water quality periods and shall be carried out in a manner approved by the permitting authority, as specified in Part II, A.3.c.

b. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit.

6. *Removed Substances*

Collected screenings, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into navigable waters or their tributaries.

7. *Power Failure*

The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures either by means of alternate power sources, standby generators, or retention of inadequately treated effluent.

8. *Availability of Reports*

Except for applications, effluent data, permits, and other data specified in 40 CFR 122.19, any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

9. *Duty to Provide Information*

The permittee shall furnish, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish, upon request, copies of records required to be kept by this permit.

10. *State Laws*

Nothing in this permit precludes more stringent State regulation of any activity covered by this permit.

11. *Property Rights*

This permit does not convey any property rights of any sort, or any exclusive privilege.

12. *Right of Entry*

The permittee shall allow the head of the State water pollution control agency, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials and such other documents as may be required by the law:

- a. To enter upon the permittee's premises or other premises under the control of the permittee, where an effluent source is located or in which any records are

required to be kept under the terms and conditions of this permit.

b. To have access to and to copy, at reasonable times, any records required to be kept under the terms and conditions of this permit, or the Act;

c. To inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

d. To sample at reasonable times any discharge of pollutants; or

e. To perform at reasonable times an operation and maintenance inspection of the permitted facility.

13. *Signatory Authority*

a. All permit applications shall be signed by a principal executive officer or ranking elected official. Discharge monitoring and other reports may be signed by an authorized representative provided that a written authorization has been submitted and that the representative so authorized is responsible for the overall operation of the facility from which the discharge originates.

b. A person signing any document shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

14. *Civil and Criminal Liability*

Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

15. *Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART III

SECTION A. OTHER REQUIREMENTS

1. *Contributing Industries and Pretreatment Requirements*

a. The permittee shall operate an industrial pretreatment program in accordance with section 402(b)(8) of the Clean Water Act and the General Pretreatment Regulations (40 CFR Part 403). The program shall also be implemented in accordance with the approved POTW pretreatment program submitted by the permittee which is hereby incorporated by reference.

b. The permittee shall establish and enforce specific limits to implement the provisions of 40 CFR § 403.5(a) and (b), as required by 40 CFR § 403.5(c). All specific prohibitions or limits developed under this requirement are deemed to be conditions of this permit. The specific prohibitions set out in 40 CFR § 403.5(b) shall be enforced by the permittee unless modified under this provision.

c. The permittee shall prepare annually a list of Industrial Users which, during the past twelve months,

have significantly violated pretreatment requirements. This list is to be published annually in the largest newspaper in the municipality during the month of April.

d. In addition, at least 14 days prior to publication, the following information is to be submitted to the EPA and the State for each significantly violating Industrial User:

- (1) Condition(s) violated and reason(s) for violation(s),
- (2) Compliance action taken by the City, and
- (3) Current compliance status.

2. *Illinois River Basin Water Quality Protection Requirements*

a. *Noncompliant Effluent Prohibition*

(1) Should the effluent quality determinations reveal that the concentration of any pollutant exceeds the 7-day average discharge limitations specified in Part I, Section A of the permit, the discharge to Mud Creek shall be halted and not restarted until the plant effluent problem is corrected.

(2) Should the effluent quality determinations reveal that the concentration of any pollutant exceeds the 30-day average discharge limitations specified in Part I, Section A of the permit, the discharge to Mud Creek shall be halted and not restarted until the plant effluent problem is corrected.

(3) For the CBOD₅ parameter, the compliance determination will be made 6 days after the 7-day period under evaluation.

b. *Bypassing and Upsets*

(1) Effluent which has not received complete treatment (i.e., "bypassed" around any portion of the treatment plant) shall not be discharged to Mud Creek.

(2) During periods of short-term noncompliance with effluent limitations ("upsets"), no effluent shall be discharged to Mud Creek.

c. Mud Creek Flow Limitations

(1) The 30-day average flow of treated effluent discharged to Mud Creek shall not exceed 50 percent of the 30-day average flow of treated effluent from the plant.

(2) The 30-day average flow of treated effluent discharged to Mud Creek shall not exceed 6.1 million gallons per day (mgd).

d. Permit Modification

(1) A joint Arkansas/Oklahoma/EPA water quality study of the Illinois River Basin is currently being conducted to determine the existing water quality, causative factors, and possible nutrient control measures.

(2) If the findings of this study indicate that more stringent limitations for Fayetteville's effluent are necessary to insure that water quality standards are met, then this permit will be modified to incorporate the more stringent limitations. This may require that additional treatment be provided or that City's discharge to Mud Creek cease.

PART IV

SECTION A. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Additional definitions of words or phrases used in this permit are as follows:

1. "Act" means the Clean Water Act, Public Law 95-217 (33 U.S.C. 1251 et seq).

2. "Administrator" means the Administrator of the U.S. Environmental Protection Agency.

3. "Applicable effluent standards and limitations" means all State and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards of performance, toxic effluent standards and prohibitions, and pretreatment standards.

4. "Applicable water quality standards" means all water quality standards to which a discharge is subject under the Act and which have been (a) approved or permitted to remain in effect by the Administrator following submission to her pursuant to section 303(a) of the Act, or (b) promulgated by the Administrator pursuant to section 303(b) or 203(c) of the Act.

5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "Environmental Protection Agency" means the U.S. Environmental Protection Agency.

7. "Grab sample" means an individual sample collected in less than 15 minutes.

8. "Industrial User" means a nondomestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.

9. "National Pollutant Discharge Elimination System" means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Clean Water Act.

10. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

11. "Sewage sludge" means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a publicly owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly owned treatment works.

12. "7-day average", other than for fecal coliform bacteria, is the arithmetic mean of the values for all effluent samples collected during the calendar week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during the calendar week.

13. "30-day average", other than for fecal coliform bacteria, is the arithmetic mean of the values for all effluent samples collected during a calendar month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.

14. "12-hour composite sample" consists of 12 effluent portions collected no closer together than one hour and composited according to flow.

15. "6-hour composite sample" consists of six effluent portions collected not closer together than one hour (with the first portion collected no earlier than 10:00 A.M.) and composited according to flow.

16. "3-hour composite sample" consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 A.M.) and composited according to flow.

17. "Treatment works" means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage and industrial wastes of a liquid nature to implement section 201 of the Act,

or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities, and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

18. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improper designed treatment facilities, lack of preventive maintenance, or careless or improper operation.

19. For fecal coliform bacteria a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.